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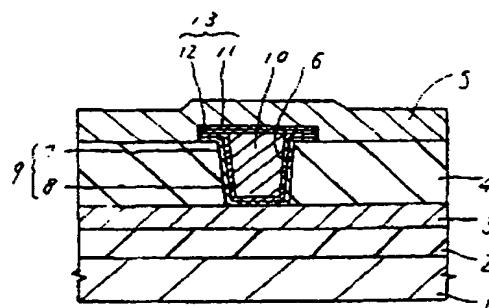
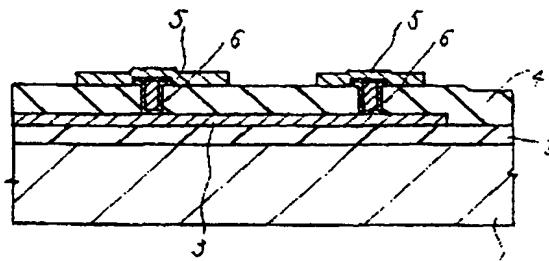
APPLICATION DATE : 01-02-85
APPLICATION NUMBER : 60016507

APPLICANT : HITACHI LTD;

INVENTOR : SUGAWARA KATSUO;

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**TITLE : SEMICONDUCTOR DEVICE AND
MANUFACTURE THEREOF**



ABSTRACT : PURPOSE: To obtain a structure without voids and cavities, and to improve the microgroove structures such as through-holes of multilayer wiring structure, groove type capacitors, and thin type isolations, by a method wherein a microgroove is filled with low melting point material.

CONSTITUTION: The first Al wiring film 3 is formed in pattern over the oxide film on the surface of a semiconductor substrate 1 or over an insulation film 2 thereon, and an interlayer insulation film 4 of CVDSiO₂ or PSG is formed thereon. The second Al wiring film 5 is formed further thereon. The first and second Al wiring films 3, 5 are connected to each other with a through-hole 6 formed in the interlayer insulation film 4. An underside barrier film 9 having the double-layer structure of a Cr film 7 and a Cu film 8 is formed over the inner bottom to inner side surfaces of the through-hole 6 and in its periphery. This hole is filled with solder 10 which is a low melting point metal, and a top side barrier film 13 made of a Cr film 11 and a Cu film 12 is formed on top of this solder or in the periphery of the barrier film 9. The mutual connection of the first and second wiring films 3, 5 is contrived via solder 10 filling the hole inside these barrier films 9, 13.

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